



# Construction - Part 1

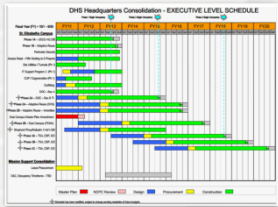


**Section #27**



# Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- Project Records
- Construction Reimbursement



**Section #27**

# Construction - Part 1

## Prior to beginning

- Received approval from NHDOT to enter into contract with lowest responsive and responsible bidder ✓
- Received approval from NHDOT to enter into contract with Construction Engineer ✓

**or "RATS" work is ineligible!!**





# Preconstruction Meeting Required

- Held at start of project
- Establishes schedule, contacts
- Highlights special details and requirements



**Document meeting with conference report to project file**



# Preconstruction Meeting

## Who attends?

- \* Project Sponsor/Person in Responsible Charge
- \* Engineer of Record
- \* Contract Administrator
- \* Contractor
- \* NHDOT Project Manager
- \* NHDOT Office of Federal Compliance
- NHDOT District Office (if on State highway)
- Utility Companies, Police and Fire Chiefs
- FHWA (optional)



**\*Mandatory**

**Section #27**



# Preconstruction Meeting

## Agenda

- Introductions
- Emergency contacts (after hours)
- Project overview
- Final and intermediate completion dates
- Traffic control / work hours
- Right-of-Way constraints / issues



# Preconstruction Meeting

## Agenda continued

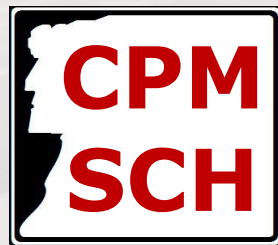
- Utility coordination
- Environmental requirements
- Quality Assurance Program / Testing requirements
- **\*Federal Compliance speaks**
- Proposed contractor's schedule

**\*Mandatory or separate meeting**

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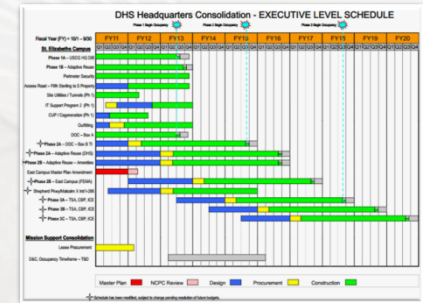
# Construction - Part 1

- Preconstruction Meeting
- **Contractors CPM Schedule**

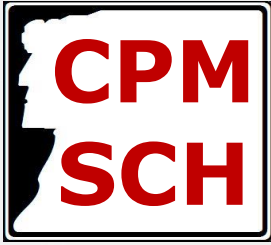


**CPM = Critical Path Method**

- Oversight & Inspection
- Project Records
- Construction Reimbursement



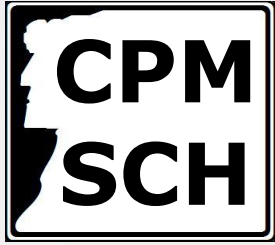




# Contractor's Schedule

## Schedule Basics:

- Required!
- Updated throughout project
- Available at project at all times
- Can withhold reimbursement if not done
- "Critical Path Method" required



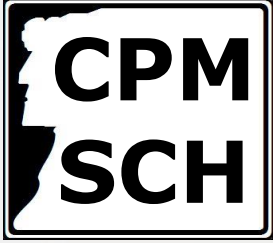
# Contractor's Schedule

**Critical Path Method (CPM)  
schedule shows:**

- Final and intermediate completion dates
- Construction activities
- Critical material deliveries
- Shop drawing schedule
- Engineer review times

**See handout for sample CPM  
schedule**

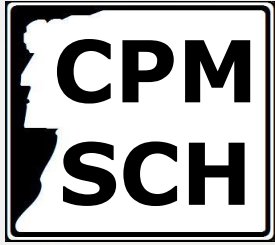
**Section #27**



# Contractor's Schedule

## Why CPM schedules?

- Track construction progress
- Identify potential issues
- Justify contract time extensions
- Determine liquidated damages



# Contractor's Schedule

## Liquidated damages

- Required by FHWA
- Financial charges to contractor if delays occur
- Amount based on value of inconvenience to public
- Importance of CPM schedule
- NHDOT General Provision 108.09



# Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- **Oversight & Inspection**



- Project Records
- Construction Reimbursement





# Oversight & Inspection

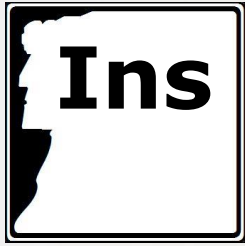
## What is not covered:

- Nuts & bolts of construction inspection is not covered here

For example:

- Paving Operation Inspection
- Concrete Pour Inspection
- Drainage Construction Inspection
- Line and grade verification



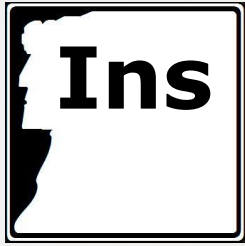


# Oversight & Inspection

## Who can do it?

- Project Sponsor can do it – if staff is qualified – check with NHDOT project Manager
- Often, Project Sponsor hires a consultant

**Reminder: Project Sponsor's "Person in Responsible Charge" is still in charge**

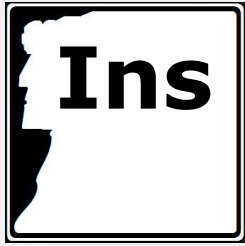


# Oversight & Inspection

## Remember QBS?

- Qualification Based Selection of Construction Engineering was covered in Step #3 of Final Design
- CE consultant can be the same as PE consultant
- FHWA is concerned about potential conflict of interest if the same
- NHDOT shall monitor for potential conflict





# Oversight & Inspection

## Sub-Consultants

- Often, consultants hire sub-consultants with special expertise

### **For example:**

- Concrete or Asphalt Testing
- Steel Fabrication Testing/Inspection
- Bridge Painting Inspection
- Underwater Inspection



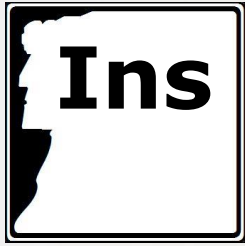


# Oversight & Inspection

## Contract Administrators

- Don't have to be licensed PE's themselves
- Must be under Supervision of Professional Engineer (PE) or Licensed Architect
- Shall be "Close to Full Time"





# Oversight & Inspection

## What is “Close to Full Time” ?

- Depends of complexity of project
- Not every hour that contractor works
- Enough to meet Office of Federal Compliance requirements
- Average 30 to 40 hours per week



# Oversight & Inspection

## What should Contract Administrators (CA) be doing?

- Observing that project is built per plans, specifications and contract requirements
- Monitoring for compliance with environmental best management practices, permits and NEPA commitments
- Monitoring for compliance with Right-of-Way Agreements/abutter coordination





# Oversight & Inspection

## What should CA's be doing?

- Monitoring traffic control
- Looking for safety compliance
- Testing material / implementing Quality Assurance Plan (QAP)
- Rejecting non-compliant materials & work



# Oversight & Inspection

## What should CA's be doing?

- Approving payments for satisfactory work
- Managing all required documentation (Project Records – next section)
- Assisting NHDOT Office of Federal Compliance with federal labor requirements and documentation

# Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- **Project Records**



- Construction Reimbursement



# Project Records

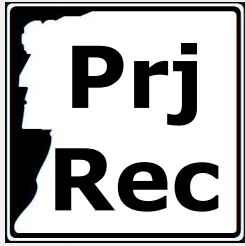
## Why?

Acceptable Project Records are  
required

Part or all of Project could be  
ineligible for reimbursement if  
Project Records are not  
acceptable







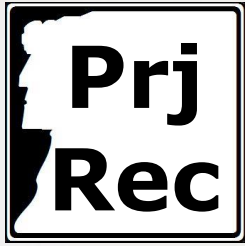
# Project Records

## **NHDOT record format required**

- NHDOT format is clear and reliable
- Understood by independent auditors
- Understood by FHWA and NHDOT

**Records shall be available at all times at project location**

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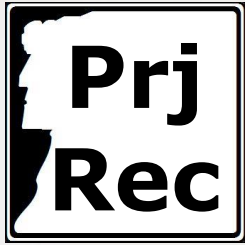


# Project Records

## Types of records:

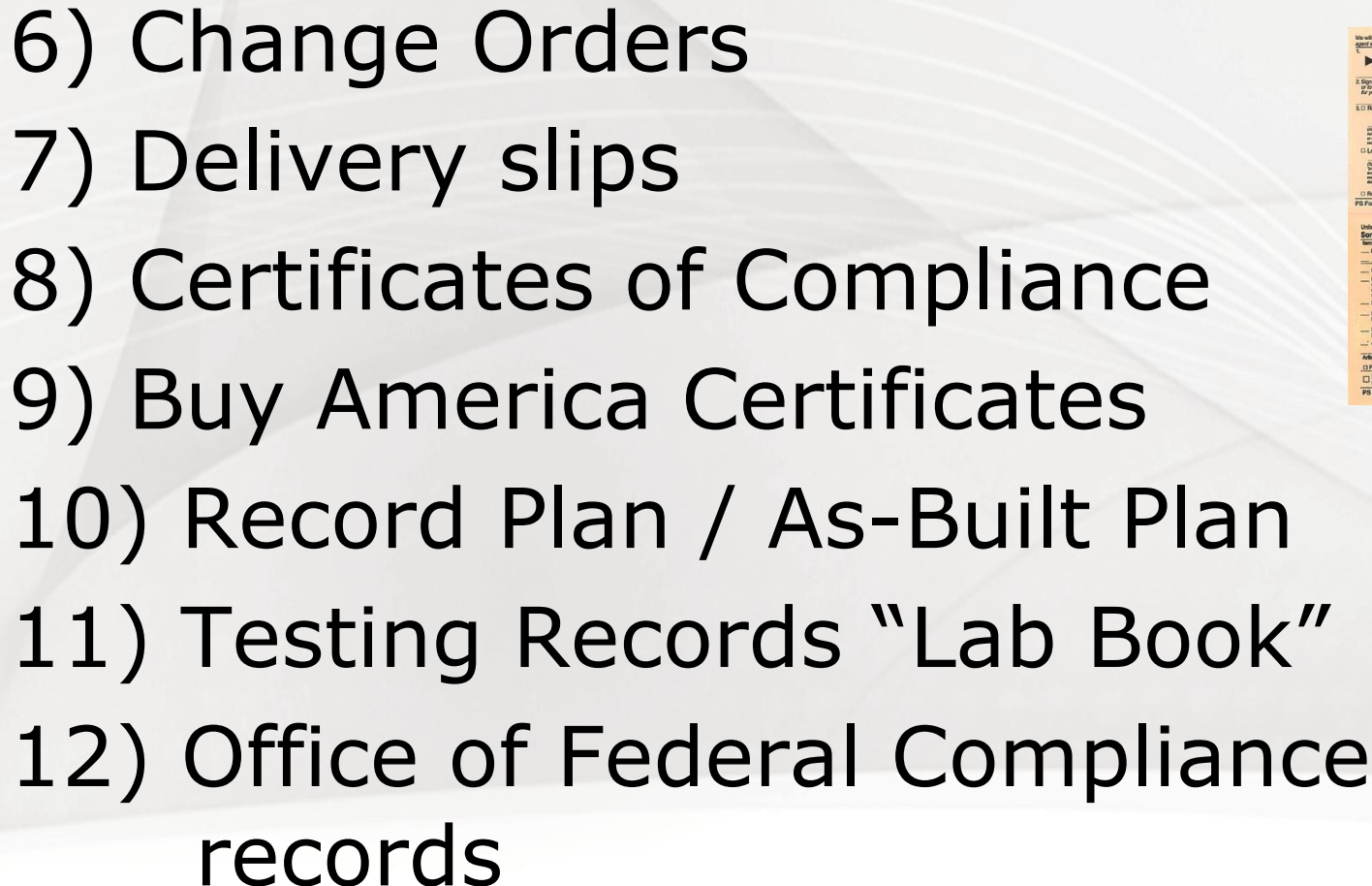
- 1) Notice to Proceed
- 2) Daily Reports
- 3) Project correspondence
- 4) Pay items
  - a) Bound Field notebooks
  - b) Quantity Book
  - c) Record Book
- 5) Balance & Excess (B&E) calculations





# Project Records

## Types of records:

- 
- 6) Change Orders
  - 7) Delivery slips
  - 8) Certificates of Compliance
  - 9) Buy America Certificates
  - 10) Record Plan / As-Built Plan
  - 11) Testing Records "Lab Book"
  - 12) Office of Federal Compliance records

We will not release this information to anyone except you and only after you agree to the Post Office. (Bring this form and **page 901**. If you are not the addressee, please give this form to the addressee.)

**1. Addressee's name**  
 a. ☐ **Sign and return to:**  
 Addressee's name and address  
 b. ☐ **Sign and return to:**  
 Addressee's name and address and the addressee's signature to be signed for by you.

**2. Is this item for addressee's collection?**  
☐ Yes ☐ No

**3. Delivery Service**  
 a. ☐ **Redelivery** (after day of mail)  
 (circle the day of the week)  
 b. ☐ **Regular** (first day of mail)  
 (circle the day of the week)  
 c. ☐ **Leave with addressee**  
 (circle the day of the week)  
 d. ☐ **Leave with addressee**  
 (circle the day of the week)

**4. Signature**  
 a. ☐ **Printed Name**  
 b. ☐ **Signature**  
 c. ☐ **Signature**  
 d. ☐ **Signature**

**5. Addressee's address**  
 a. ☐ **Business**  
 b. ☐ **Residential** (circle day of mail)  
 c. ☐ **Business**  
 d. ☐ **Residential** (circle day of mail)

**6. Return to:** ☐ **Business** ☐ **Residential** (circle day of mail)

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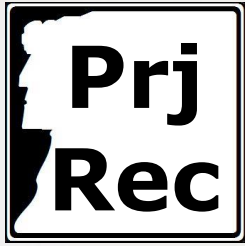
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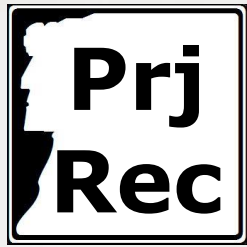
**27**



# #1) Notice to Proceed (NTP) Records

- Project Sponsor issues formal NTP to contractor with start date
- Winter shut downs and Spring re-starts need formal notices
- Copy all NTPs to project records
- Copy all NTPs to Office of Federal Compliance
- Needed for Liquidated Damages

NOTICE TO PROCEED



## #2) Daily Report Records

### Provide Documentation of:

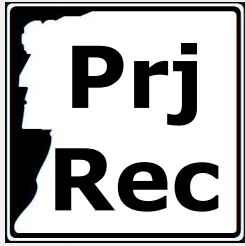
- Contractor's progress by item & location
- Orders given
- Conversations with contractor
- Working conditions and weather
- Delays
- Visitors
- Accident information

A detailed form for the State of New Hampshire Department of Transportation. The form is titled "STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION" and "Daily Report for". It includes fields for weather, temperature, contract completion date, number of working days used, and number of days remaining. It also has a section for "Contractor's Productivity" with checkboxes for Normal, Sub-Normal, and Reason for sub-normal productivity. A large table follows with columns for various construction activities: Earthwork, Foundation, Structure, Roadway, Bridge, Tunnel, and other. The table has multiple rows for recording data. Below the table is a section for "Project Personnel Hours" and a large area for "Item" and "Location" descriptions. At the bottom, there are fields for "Signed" and "Project Engineer", and a section for "Additional Remarks on Book Side".

**See handout for sample  
Daily Report**

**Section #27**

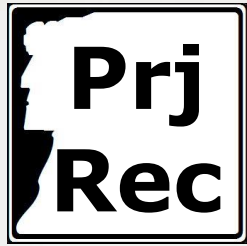




# #3) Project Correspondence Records

## Keep and file all:

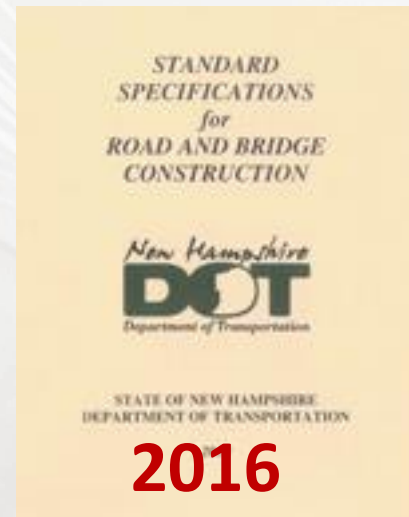
- Letters, e-mails, faxes, project schedules
- Approvals
- Letters of transmittal
- Utility force account agreements
- Shop drawings
- Office of Federal Compliance records
- Storm Water Pollution Prevention Plan
- Pictures and Videos, etc...

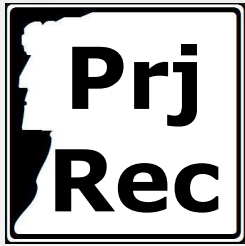


## #4) Pay Item Records

### NHDOT standard pay item nomenclature required

- Found in NHDOT Road & Bridge Standard Specifications Sections 200 thru 600
- Examples
  - Item 201.1 Clearing & grubbing
  - Item 520.11 Concrete Class A
  - Item 609.3 Straight Granite Curb





# #4) Pay Item Records

**Three types of pay item records (all needed)**

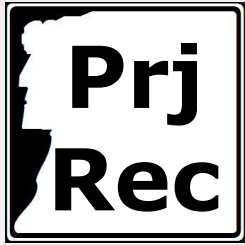


4a) **Bound Field Books**



4b) **Quantity Book (QB)**

4c) **Record Book (RB)**



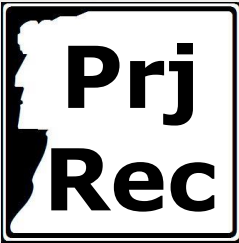
## #4a) Bound Field Book

### Contract Administrator (not contractor) records:

- Quantities of items installed
- Item numbers
- Dates and locations
- Reference to Quantity Book and Record Book

*May need  
more than  
1 field  
book*

**See handout and next slide for  
sample Field Book entry**



# #4a) Bound Field Book

## Sample Field Book Entry:

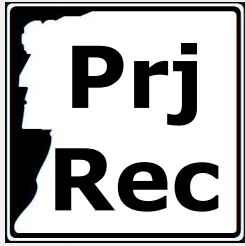
Item 645.531 Silt Fence		RN 1-02	
3/5/96	Silt Fence Measured Sta 503+50 - 504+10 Rt	118 ft	174 ft To QB + RB MM 3/22/96
3/20/96	Silt Fence Measured Sta 501+20 - 501+75 Lt	56 ft	
3/29/96	Silt Fence Measured Sta 509+00 - 511+26 Rt	226 ft	To QB + RB RT 3/29/96

To  
QB  
&  
RB

Item #645.531 Silt Fence

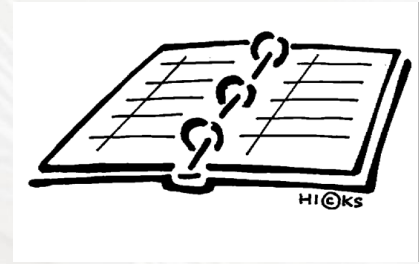
Section #27



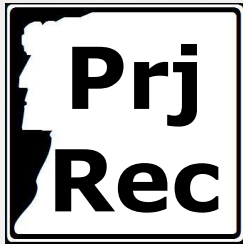


## #4b) Quantity Book

- Separate page for every pay item
- Documents chronology of pay item installation (when and how much)
- Use to make progress payments to contractor
- References Field Book source and Record Book location



**See handout and next slide for sample Quantity Book entry**



# #4b) Quantity Book

State of New Hampshire Department of Transportation  
**QUANTITY BOOK ITEM SUMMARY**

QB Page  
154.00

- Project Name
- Project Number
- Item number
- Total quantity
- Accum quantity installed to date
- Pay estimate #
- Amount paid
- Source of Info
- Who entered
- Cert. of Compliance needed?

Project Name: Graniteville, X-A000(123), 25643  
Item Number: 09.01 Appropriation Code: PAR Certificate of Compliance: Not Required  
Item Description: Straight Granite Curb  
Contract Price: \$20.00 Contract Quantity: 650 LF

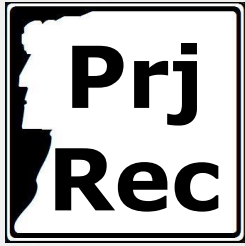
Source	Entered By	Date	Remarks	Quantity	Accumulated Quantity	Est
RN 1-15	BLS	9-20-11	113+00 to 114+80	180.00	180.00	10

Note: Do not pay 6 LF, needs to be replaced  
as per Daily Report 9-20-2011

ESTIMATE #10			09/01/2011 – 09/30/2011	174.00	174.00	
RN 1-15	BLS	10-04-11	113+00 to 113+06	6.00	180.00	11

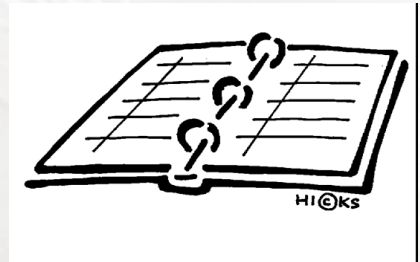
RN 1-15	BLS	10-04-11	115+00 to 116+00	100.00	280.00	11
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ESTIMATE #11			10/01/2011 – 10/31/2011	106.00	280.00	11
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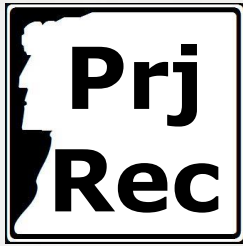


## #4c) Record Book

- Separate page for every pay item  
(Similar to QB)
- Final record of all items constructed
- References Field Book source and  
Quantity Book location



**See handout and next slide  
for sample Record Book entry**



# #4c) Record Book

## State of New Hampshire Department of Transportation RECORD BOOK ITEM SUMMARY

RB Page 154.00

Project Name: Graniteville, X-A000(123), 25643  
Item Number: 609.01 Appropriation Code: PAR Certificate of Compliance: Not Required  
Item Description: Straight Granite Curb  
Contract Price: \$20.00 Contract Quantity: 650 LF  
B&E Quantity: 640 LF

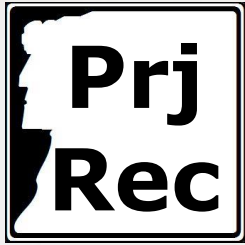
Source	Entered By	Date	Remarks	Quantity	Accumulated Quantity
RN 1-15	BLS	9-20-11	113+00 to 114+80 RT	180.0	180.0
RN 1-15	BLS	10-04-11	115+00 to 116+00 RT	100.0	280.0
RN 1-15	BLS	10-11-11	116+00 to 119+00 RT	300.0	580.0
RN 1-15	BLS	10-18-11	119+00 to 119+60 RT	60.0	640.0
TOTAL ITEM					640.0 LF

Checked By: TFM Date: 10-26-11

Approved By: BLS Date: 10-27-11

## Section #27

- Project Name
- Project Number
- Item number
- Total quantity
- B&E quantity
- Accum quantity installed to date
- Amount paid
- Source of Info
- Who entered
- Checked by
- Approved by



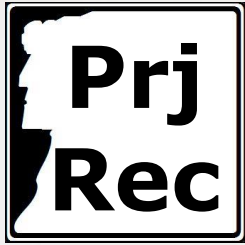
# #5) Balance and Excess (B&E) Records

## Tool to avoid over expenditures

- Compares pay item totals with the installed quantities at the **25%, 50%, 75% and 90%** stages of a project
- Predicts overruns and underruns
- Allows time for Change Orders prior to end of project

**Danger – Balancing Change Order at the end of project cannot authorize additional funds**





## #6) Change Order Records

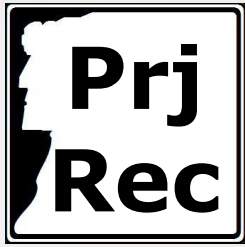
**Change Orders need to be documented and kept on file**

- 1) Emergency condition
- 2) Critical path
- 3) Non-Critical path
- 4) Time extension
- 5) Non-Participating
- 6) Balance and excess
- 7) Final balancing



**Change Orders are presented in Construction Part 2 – later this afternoon**

**Section #27**



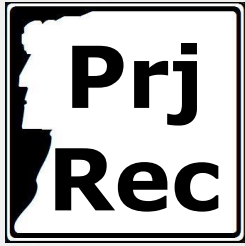
# #7) Delivery Slip Records

## Concrete and Paving



➤ **Contract Administrators collect and sign slips**

**Section #27**



# #8) Certificates of Compliance Records

## Manufactured & fabricated items

- Reinforcing steel, drainage pipe, structural steel, precast concrete structures, guardrail, etc....



**See handout and next slide  
for sample Certificate of  
Compliance**





# #8) Certificates of Compliance Records

Division 800

RB Page No. 15.02  
File # 3

ORGANIZATION LETTERHEAD  
(Manufacturer, Supplier, or Contractor)

CERTIFICATE OF COMPLIANCE  
(Manufactured or Fabricated Material)

Date Aug 8, 1996

WE HEREBY CERTIFY THAT Tri-Cote  
Description, Kind of Material, or Trade Name

Furnished to Structures Unlimited (Sub.)  
Contractor (Prime or Sub.)

Delivered and Used on:  
Bridge # 175/25 @ Laconia NHS-018-2 (104) 99999  
Project Name Federal No. State No.

Used for Item No. 534 Tri-Cote  
Name of Item

Manufactured by T.G. Products Corp.

Supplied by Boyd's & Company

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDP) IN ALL RESPECTS. PROCESSING, PRODUCT TESTING, AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND STANDARDS OF ALL ARTICLES FURNISHED.

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from the date the Project has been completed and accepted.

T.G. Products Corp.  
(Manufacturer, Supplier, or Contractor)

Signed by Tom Harrison Title District Manager  
(Officer of Organization)

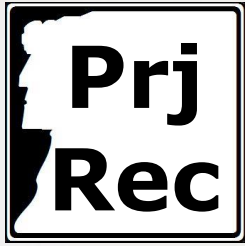
Subscribed and sworn to before me this 8th day of August, 1996

James C. Boudet My Commission Expires: April 15, 1997  
Notary Public/Justice of the Peace

(For more than one item, list each Item No., Item name, Manufacturer, or Supplier or both)

800-74 2006

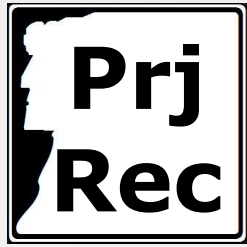
- Manufacturer name
- Supplier name
- Item name
- Item number,
- Project name
- Project number,
- Tied to specific delivery
- Notarized



# #9) Buy America Certificate Records Requirements

- Steel and iron products permanently incorporated in project must be certified American made
- Includes all steps in process: milling, manufacturing, fabricating and coating of iron or steel products
- Step Certification for each process



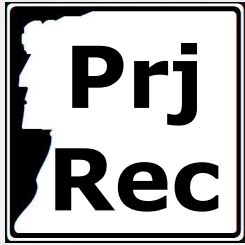


# #9) Buy America Certificate Records

## Examples

- Structural steel (bridge girders)
- Reinforcing steel (bridge deck)
- Guardrail (galvanized beam rail)
- Drainage (cast iron catch basin grates and frames)
- Exception: Cost of material including foreign steel and iron less than one-tenth of one percent (0.1%) of total contract price or \$2,500 whichever is greater



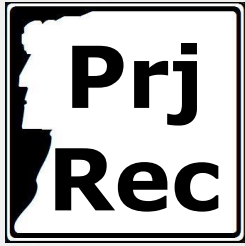


# #9) Buy America Certificate Records

## Buy America Video Presentation



**Section #27**



# #10, #11, and #12 Records

- **#10 Record Plans / As- Builts** are required (see Project Manager for requirements)
- **#11 Testing / Lab Book Records** are covered later this afternoon in Part 2
- **#12 Office of Federal Compliance (OFC) Records** are covered in separate Labor Compliance training with the OFC

# Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- Project Records
- **Construction Reimbursement**





# Construction Reimbursement

## Sponsor's payment to contractor

- Typically once or twice per month (varies)
- Based on Project Records noted previously (Quantity Book, etc...)
- Measured & certified by Engineer
- Agreed to by Contractor, and
- Approved by Sponsor
- **Retainage is not allowed!**







# Construction Reimbursement

**Sponsor's monthly reimbursement request to NHDOT includes:**

- Proof of payment to contractor
- Status report of work during time period
- Certification statement from Sponsor (true and accurate)
- Certified item summary from engineer





# Construction Reimbursement

## Construction Engineering (CE)

- Reimbursement of consultant CE charges was covered this morning in Project Administration Step #6
- Also covered in Section #12 of the LPA Manual





# Construction Reimbursement

## Multi-funded projects

- Clearly track and show both participating and non-participating work
- NHDOT and FHWA track non-participating work as part of the process
- Complete financial summary needed during project close-out





# Construction - Part 1

## Questions ?



**Next Up:**  
**Construction – Part 2**